DIGITAL COMMUNICATION
SIGNAL COMBINING & CHANNEL ESTIMATION

TECHNOLOGY READINESS LEVEL: 5

KEY COMPONENTS OF THIS TECHNOLOGY HAVE BEEN DEMONSTRATED IN RELEVANT ENVIIRONMENTS

US PATENT # 8,009,772

US PATENT # 7,653,155

TECHNOLOGY SUMMARY

Many communication systems employ multi-channels that transmit and receive a common signal. In these systems, the common signal is combined at the receiver to achieve maximum channel capacity. During the combining of such signals the delay and phase parameters are estimated based on a convolution decoding operation and are removed from the signal. At low signal to noise ratios these parameters become difficult to estimate and impractical to implement.

The combination of these two Sandia technological advances introduce a new method whereby the channel parameters are estimated and removed simultaneously using a convolutional decoding operation, while being combined by the receiver. This new method allows for the signal combing to occur at low signal to noise ratios which improves the over all channel capacity without losing functionality.

POTENTIAL APPLICATIONS

- Satellite Communication Systems
- Cellular Communication Systems
- GPS

TECHNOLOGICAL BENEFITS

- Improvement of Overall Channel Capacity
- Improved Signal-to-Noise Ratio
- Simplification of Signal Receiving Method

TECHNOLOGY INQUIRY?

For more information or licensing opportunities contact us at

ip@sandia.gov

Refer to SD # 10115 & SD # 7376

or visit

https://ip.sandia.gov

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